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ABSTRACT

A discussion of the visual aspect of second-language reading processes proposes a theoretical model of reading and reports on research into the kinds of questions second-language students ask in class. The model of reading outlined is based on the operations of the human eye. Just as the operations of the lens (focus) change the picture at the back of the eye, the focus of the "mental eye" comes from the scope of questions asked. These can be adjusted to either the level of the letter (reflected in questions asking for small pieces of information) or the meaning of the entire passage (reflected in extended-answer questions). A study analyzing the kinds of questions asked by students in four second-language classes in Saudi Arabia found that most asked about the structure and meaning of particular words, and that most were not grammatical in form. This points up a distinction between the grammatical role of questions and their logical role. It is proposed that due to the urgency of their need for information, students ask questions in their logical role, regardless of grammar. Results are seen to have implications for selection of reading passages used in instruction. (MSE)

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ED 365 105

Visual aspects of second-language reading.

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Abstract.

This article is a description of the processes involved in second-language reading mainly in visual terms. Support for this suggestion is provided by a brief survey of the differences between writing systems, by perceptual difficulties involved in dyslexia, and earlier definitions of L2 literacy in the literature (Strevens 1983). Nevertheless, the main visual aspects being explored here are beyond those of the form or shape of letters, but at the level of passage-structure and passage-comprehension.

A theoretical model of reading is provided, based on the operations of the human or mammalian eye. The aspect of **focus** provides the link between the physical and mental processes. Just as the operations of the lens are responsible for changing the kind of picture at the back of the eye, the focus of the 'mental eye' comes from the **scope** of questions. These can be adjusted either to the level of the individual letter or take in the meaning of the entire passage. The first of these would be a result of short-answer questions ('What?,' 'When,' 'Who?') asking for little pieces of information. The second would be a result of extended-answer questions capable of surveying the meaning of the entire passage ('Why?' or 'How?').

Four reading classes in Saudi Arabia are analysed for the kind of questions asked by the students. Mainly, these are questions with a short-scope or a short-answer. Mainly, they are asking about the structure and meaning of particular words. Similarly, many of these questions are not grammatical in form. Students ask questions in spite of their difficulties in grammar. A distinction is drawn between the **grammatical role** of questions (to which the notion of 'scope' is quite irrelevant) and the **logical role** of questions (which mainly determines the notion of question-scope). Due to the urgency with which they need to 'see' or perceive the meaning of the passage, students are asking questions in their logical role, regardless of their grammar. There is discussion of the general implications of this phenomenon towards language-teaching.

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A. Introduction.

This paper will try to explore the essential features of second-language reading. Unlike most such descriptions, the focus will not be upon the linguistic aspects of reading, in terms of units such as sounds (or letters), words or sentences. Linguistics itself tells us that these are arbitrary among languages. There is no reason that an 'a' is not an α (Greek alpha) or a Д from the Russian alphabet. These have the same linguistic function, but a different visual shape. A large part of the difficulty in reading a new language must consist of coming to terms with this new visual image. Similarly, with words, these are also arbitrary. Rather, the focus will be on the actual process of reading; in what manner do we process our written systems? What is there in common between a reader of English and a reader of Chinese? At least one important area of similarity must be that any kind of reader is being confronted by a **visual system**. We will be exploring the visual aspects of reading well beyond the differing shapes of letters to the structure and comprehension of actual passages.

Possibly, the approach we will be taking might be slightly unusual. In first-language reading, there have been letter-based theories (Gough 1972); grammar-based accounts (Smith 1971); models involving word-context processing ('bottom-up' models); models involving context-word processing ('top-down' models). In second-language reading, the emphasis has been equally upon the linguistic aspects of reading; Coady (1979) seeing it as a 'bottom-up' process beginning at the level of phonemes and morphemes; Widdowson (1934) viewing it as a communicative activity, based upon the expectations of the reader. It is the task of the writer to predict the reader's expectations. Undoubtedly, there is a great deal of truth in all of these accounts. Moreover, for so complex an activity as inferring the words, phrases or sentences of a new language, almost certainly no single definition will be suficient. However, the present view owes much to Strevens' (1983) view that reading is also a visual activity. This is an approach which has not received a great deal of attention and, although unlikely to have all of the answers, might hold some clue as to the way in which we can comprehend larger units, such as passages.

Perhaps we ought to clarify those aspects of reading which are visual. These would range from the small units of reading to large:

(1.) Letters, syllables and words: A writing system might be *alphabetical* (like English, Greek, Russian or Arabic), *syllabic* (like Japanese) or pictographic or *ideographic* (like Chinese). It is also possible to have combinations of these: Japanese having both syllabic and ideographic systems. Beyond these, there must also be conventions as to the direction of writing. In Chinese, one reads from top-to-bottom and, in Arabic, from left-to-right. Ancient Greek was reported to use a device known as *boustrophedon* ; when one finished reading one line, one did not begin reading at the beginning of the next line but at the end of the next line. This avoided the inefficiency of having to move one's eyes backwards or forwards across the page. All of these methods of writing represent different visual systems.

(2.) Rhetorical units: These would involve a chain of reasoning extending to the level of a paragraph or beyond. Again, the manner in which one organises ideas could be a source of difficulty to a person used to another way of presenting

information. In an early article, Kaplan (1966) described what he called a 'contrastive rhetoric,' accounting for differing organisational patterns. Nevertheless, its basic tenet must be fairly undeniable; that the manner in which one presents an argument often depends upon cultural considerations. For those used to a European or Graeco-Roman tradition, the expectation would be for a linear argument. For a Japanese, however, arguments might be circular; this is also the case for some of the languages of New Guinea[1]. For an Arab or a Russian, according to Kaplan (1966), a more zigzag pattern might be expected. These would imply that there are not fixed, universal ideas of what constitutes logical organisation. 'The foreign-student paper is out of focus because the foreign student is employing a rhetoric and a sequence of thought which violates the expectations of the native-speaker' (Kaplan 1966; 296). Similar cultural differences might influence our views about time or space. Differing views about these matters would constitute differing ways of **creating reality** or different ways of looking at the world.

(3.) The process and units of inference: These would be slightly different to rhetorical organisation since, here, we are dealing specifically with the comprehension process. Clearly, in second-language reading, one's ability to discern meaning will be much more limited compared to one's own language. Regarding the kind of inference involved, we might adopt a visual metaphor here; from the world of art. Looking at the words in a new language is like looking into the dots of colour of a pointillist picture like Monet's 'Water Lilies.' One might recall that pointillist painters saw the world as a series or mass of dots. As a result, the task of interpreting their pictures consists of seeing beyond the dots to the much larger picture. Often, one needs to take a step or two backwards in order to achieve this task. The purpose of this is to gain a larger or broader field of view; to place the dots into a wider perspective; to put them into the **focus** of the much broader picture. Under the wider focus, one does not have to be able to 'see' or identify all of the dots. Individual dots lose themselves in the wider picture and it is the general impression that is important. This would provide the 'process' of inference; the ability to see a wide picture, as in reading for gist. In the same way, when one reads for general meaning, it is the overall picture that is important. The meaning of individual words does not matter nor is it necessary that one be able to visualise each and every word. This means that the system by which one achieves comprehension is highly selective in linguistic terms. Some words might be more important to comprehension than others. What one might like to know the kind of words important to this process of 'seeing' the general meaning ('mental vision'), as well as the kind of processes that contribute to such a style of vision.

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Difficulties in first-language reading, such as dyslexia, are often ascribed to visual causes. If so, it might result the same kind of 'mental vision' that one is thinking about in learning a new language. This would involve forming a picture in one's mind of situations being described in the reading passage. These pictures might form in a 'mental eye' or the 'mind's eye,' rather than the 'physical eye.' Clearly, the functions of these are quite different, but one would like to know more about the principles or processes by which such a mental/visual unit might operate. Such a question would imply that one is not thinking of a 'mental eye' in simply metaphorical terms. There are many expressions in English which suggest a close correlation between the two skills; understanding (mental) and seeing (physical). When it is difficult to understand what a writer says, we say 'I couldn't see what he was driving at' or 'I couldn't see the wood for the trees.' Again, one often says 'I see,' instead of 'I understand.' The seeing in these cases would refer to the formation of a mental picture rather than a physical picture seen through one's visual apparatus. In a number of languages, the verb 'see' can be used interchangeably with 'comprehend'; probably, a very large number of them. This is the case with Spanish and French, as well as a number of African languages and languages in Papua New Guinea[2]. These examples would suggest that there is more than a grain of truth in our talk of a 'mind's eye.' If so, however, one would like to know more about its operations.

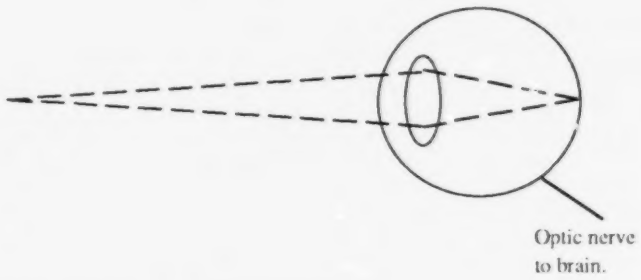
Of course, one might argue against a visual theory of comprehension. One might point to a range of words, phrases or passages in which it is impossible to infer the meaning based on the literal meaning of the words. Idioms would be an obvious counter-example to such a reading, or expressions such as 'You hit the nail on the head' or 'You can take a horse

to water, but you cannot force it to drink.' One might points to words which present similar mental pictures; *endorse/ sign*, *cup/mug*. For some words, it is difficult to make a mental picture at all; this is the case with *literal* or *vapid* or *linguistics*. It is difficult to produce actual pictures of abstract entities. For these, one think again of the analogy of the pointillist picture. It is not the individual dots that make the image, but the accumulation of dots. One is *not* saying that every word has a related picture, but simply that picture-making can occur for many words and that, probably, it is essential process in making sense of entire passages. Again, one wonders how one achieves this.

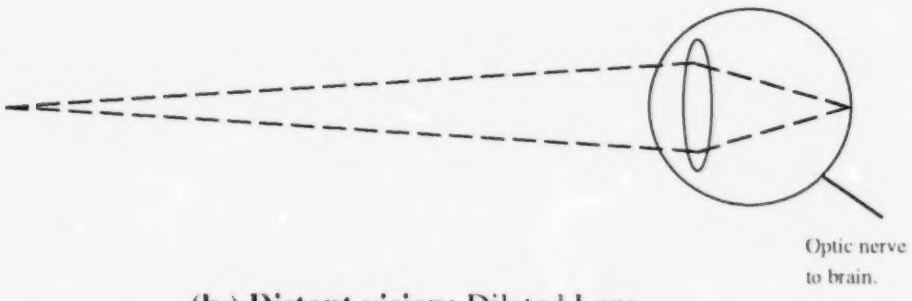
In order to describe the ground-rules for such a process, possibly one might take the activities of the 'physical eye' as an approximate model. Again, we are not claiming that such an account will cover all aspects of reading (particularly, not metaphorical meaning), but that there might be more than a few resemblances.

B. The mind's eye.

Usually, the 'mind's eye' is simply taken as having a metaphorical resemblance with speech or comprehension. If there is a closer link than the merely anecdotal or apochryphal, it would be part of the way in which we construct ideas of reality or the **conceptualisation process**. This would be a world of abstract logical units rather than those of linguistics or semantics. We might as well remind ourselves of the biology of a human or mammalian eye:



(a.) Close vision: Contracted Lens.



(b.) Distant vision: Dilated Lens.

Figure 1.: The operations of the lens in the human eye.

There are a number of features that might be important here. When the lens is contracted or thickened (Figure a.), it can focus upon objects from a relatively close distance, or upon relatively small objects. When the lens is dilated and thin (Figure b.), it can focus upon objects at a greater distance or achieve a wider perspective over a scene. This difference between achieving a narrow and a broad focus will be important when we come to looking at the parallels with linguistic processing. Again, a link between the 'physical eye' and the 'mental eye' involved in reading would come from the messages from the physical eye via. the optic nerve to the brain. The rods and cones at the back of the retina would also need to be able translate purely physical information into mental terms.

The most important feature in all of this is the notion of 'focus.' This is the process by which one obtains a clear picture based upon confusing visual input. But 'clear' by what criterion? By the criterion dictated by the mental eye. When one looks at a picture by Monet or a page written in Chinese, probably one's first response is to ask, 'What is it about?' or 'What does this dot/letter represent?' It might be naïve to suggest that, in terms c e mental eye, it is this very act of question-making which provides the element of mental focussing. In order to distinguish between focussing by the visual eye and focussing by the mental ete, we might speak about physical focussing and mental focussing. Only the latter process proceeds by means of question-making, but its results would need to be capable of translation into physical terms.

The notion of a question is interesting, especially in terms of the kind of information it provides. It provides a means by which one can directly translate the notion of visual 'focus' into verbal form. This is not dictated by the grammar of a question, but by purely logical principles. One might ilustrate that as follows:

1. Q. Where did you go last night?
   A. I went to the Gerehu pub. It was very interesting.

2. Q. Where did you go last night?
   A. To the Gerehu pub.

The first of these does not follow the logical, or visual, perspective defined by the question. One might call this a matter of the question's **scope**. This makes a prediction about the kind of answer that is likely under the circumstances. The exact nature of the prediction is defined by the presuppositions of the question. In other words, in asking a question, one is also checking the assumptions of the situation. In logical terms, the presupposition of the above question would be something like, 'There exists a place that you went to last night'[3]. The resulting question directly addresses the subject of the presupposition; namely, the place; that is all the only information that is being requested. In fact, the answer in 1. provides considerably more information than is required in logical terms. This suggests that the addressee is thinking beyond the bounds of the question. He is being distracted by unnecessary detail. (In fact, this would be detail of a grammatical variety since he is attempting to match a grammatical sentence with a grammatical sentence.) What results is both logically defective and suggests the wrong visual perspective on the question; a failure to recognise the boundaries of its presupposition. This mistake is not made in 2. which offers all and only the information requested by the question.

In regard to actual reading tasks, such an example is unrealistically simple. Especially in second-language reading, there might be numerous areas of difficulty; words not understood in a passage; inability to understand the relationship between words and their context. These difficulties take on additional significance when one sees each difficulty as arising from a question asked by the reader. Always, the writer is trying to predict the kind of questions being asked by a reader (Widdowson 1984) but, in the case of second-language readers, it is difficult to predict that may or may not understand.

The important point is that, as in the above example, the reader's questions provide a record of his present vision of the text. The scope of his questions can be traced back from what he is asking bout; whether the meaning of individual words or the meaning of the entire passage. Some kinds of questions have a rather narrow scope, requiring only a few words for an answer. This is the case with Yes-No questions, choice questions and certain kinds of wh-questions ('Who?,' 'What?,' 'Where?,' 'When?'). One might call these short-answer questions or *'lower-order questions.'* However, other

kinds of questions take a little longer to answer, suggesting that they have a much broader set of presuppositions. This would be the case with 'Why?' or 'How?' questions. These would be extended-answer questions or *'higher-order' questions* [4].

Here, we have provided a specifically logical set of terminology; consistent with the view that, in many aspects, we see reading as a visual process. However, the distinction between our two kinds of questions is not dissimilar to other distinctions in the ESL literature. For instance, Been (1978) makes a distinction between *'literal' comprehension questions* (such as 'Who?,' 'What?' or 'Where?'), asking for specific pieces of information, and *evaluative/inferential questions* in which students are expected to provide their own He suggests that students be encouraged to think in terms of inferential/evaluative questions from quite early in languages. Comprehension questions based simply on literal meaning or small pieces of information do not challenge the student to look deeper into a text. Following our logical/visual criteria, we would make the same claim for the difference between 'lower-order' and 'higher-order' questions. Specifically, by progressing to higher-order questions, we would see the student's vision of a passage expanding in the same way as when one steps backwards from an Impressionist painting. No longer is one looking at little points of light or colour, but one is able to see these coalesce to form a much broader picture. From a further distance, one is able to place into focus the details; in verbal terms, they fall under the scope of a common question. The process of visual recognition consists of being able to frame that question and to see how a text or a picture provides an answer. Before that, however, there is many a wearisome stage in which the reader (or interpreter) is still trying to place into focus relationship between words or the relationship between different daubs of colour.

From the following passage, one can see this transitory stage of trying to decipher the meaning of a piece of writing. A number of blanks have been left in the passage. All of these were words or phrases subject to inquiry by a group of second-language learners. These students were far from beginners, having had five years of schooling in English grammar. As pre-medical university students, they were very familiar with the subject matter of the passage. In their own language (Saudi Arabic), they were more than conversant with any technical terms. Still, however, one can see that the result is very much like a patchwork. Despite their background, they were still at a stage of standing just a few yards away from a Monet painting. Their inability to gain a much broader perspective on the passage will become more obvious when we come to look at the kind of questions being asked.

Passage 1.

The Skeletal System.

Your body is constructed on a framework of bones; the skeleton. The skeleton gives shape to your body and protects all soft parts inside your body. It has many different kinds of joints so that you can move. The main parts of the body are the head, the _____ (*trunk*) and the limbs. The skull consists of two parts; the cranium, which contains the brain, and the face, which forms a bony framework for the eyes, nose and mouth. The cranium has eight bones joined together and the face is _____ (*composed of*) 14 bones.

The largest part of your body is called the trunk and it contains the spinal column, or backbone, the ribs and the pelvis. The spinal column has 33 bones called vertebrae separated by small discs of cartilage.These discs make it possible to move the backbone. They act as shock- _____ (*absorbers*) to protect the vertebrae from being changed or broken by sudden shocks.'

Free movement of the body is made possible by a whole series of joints. Some joints are _____ (*fixed*) and others _____ (*allow*) movement. For example, in your arm, you have joints at the shoulder, elbow, wrist and fingers. In your legs, there are joints at the hip, foot and _____ (*toes*). There are three kinds of joints. Fixed joints are _____ (*cartilaginous*) joints because a layer of cartilage and tissue lies between the bones and _____ (*binds*) them together. _____ (*Hinge*) joints, like the elbow and knee, are those in which movement can mainly take place in one direction. There are also _____ (*gliding*) joints, where the bones have flat surfaces. These can only make limited movement. And three, _____ (*ball-and-socket*) joints in which the bones _____ _____ (*fit into a hollow socket*) at the end of the shoulder-blade and makes it easy to move your arm

in any direction. The pelvis connects the lower limbs to the spine and a ball of bone from the upper leg fits into a deep socket in the _____ (*pelvis*). Many of bones are made _____ _____ (*movable*) by synovial joints. They move about freely and are protected by a layer of cartilage. They can move about in any direction. Synovial fluid helps to _____ (*lubricate*) the movement of the joint.The bones are linked together by thin bundles of fibers and _____ (*ligaments*) and are kept in position by muscles and _____ (*atmospheric*) pressure.

Four pairs of ribs are connected to your breastbone and three of them curve and join your breastbone or sternum. The ribs of the sternum form your chest or thorax and protect your heart and lungs. The legs are given shape and movement and the feet each have 26 small bones. The upper limbs are similar to the lower limbs in structure. The hands are each composed of 27 bones. The _____ (*pelvis*) connects the lower lower limbs to the spine. The legs are given shape and movement by three long bones in each and the feet each have 26 small bones. The upper limbs are similar to the lower limbs in structure. The hands are each _____ (*composed of*) 27 bones.

The need to ask about the nature of so many words suggests two things: (1.) a very partial understanding of the passage, and (2.), more importantly, an inability among the students to come up with their own answers. Second-language research suggests that it is almost a condition that a 'good language student' be a 'willing and accurate guesser' (Rubin 1975; Stern 1975). If so, the fact that so many words or phrases were subject to questionning would suggest very poor students. In terms of their oral skills, however, these were among the most forthcoming and motivated students I have encountered.

Rather, it is more likely that guessing words or guessing meaning is not an easy task, particularly in a new language. Probably one of the main implications of our visual analogy is that, for much of the time, the student is 'working in the dark' as to the broader meaning of the passage. He is looking at the passage from an inaccurate focus and is 'blind' to the scope of the larger questions involved. Such visual images also underlie the notion of 'making sense' of a reading passage, rather than 'deciphering' it. As suggested earlier, this notion of 'making sense' of a passage mainly applies to following its logic, perceptions or methods of reasoning. Second-language reading is problem-solving activity with a distinctly visual end; a matter of seeing the entire picture; looking through the words to a clear view of what is meant.

One might suggest a broad continuum of being able to 'see' the meaning of passages. Such as a classification is also broadly consistent with 'bottom-up' models of L2 reading, such as Coady (1979). However, it would also be couched in our visual or question-making terminology. This would be a visual scale, not a linguistic. In the early stages, there would be a process of **making sense of words**. This might have to begin at the level of orthography or spelling. It might involve the ability to piece together the meaning of words, based upon their morphology. Beyond that, however, there would be the problem of how to undestand the meaning of individual sentences. One would progress to looking at the relationship between sentences to the meaning of the entire passage. Nevertheless, this would be a largely grammar-based or linguistic view of reading. Beyond all of these, there would be a further level of **making sense of the world**. This would be our level of visual comprehension; of being able to follow the logic of a passage or to see the entire picture. In fact, one cannot expect students to guess the meaning of many words until they have seen this much larger picture. Rather, if students are to be truly 'willing and accurate guessers,' as soon as possible they should be taught to look beyond the word.

C. Questions in Four Reading Classes.

Eventually, the teacher will need to ask himself the question of how one is going to teach vision. The broad theoretical parameters have already been provided. One's task is to proceed gradually in helping the student through the process of making sense of words to making sense of the much the much wider context. This would involve a process of gradually expanding the scope of the questions one asks the students. This is not inconsistent with the current emphasis upon global comprehension in teaching reading (Cates and Swaffer 1979).

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Our group of students were all studying English for Medicine at King Saud University, Saudi Arabia. All were in their first-year of university (pre-medical studies) and aged between 18-21. All were male and all were native-speakers of Saudi Arabian Arabic. Their questions came from taped transcripts of four reading lessons, based on passages like Passage 1. Other passages included: 'The Beginning of Life'; 'Heart Diseases,' and 'Digestive System.' In all of these lessons, there was a tendency among the students to focus upon the meaning of particular words or phrases rather than trying to guess these from the larger picture. In terms of the information assumed by questions (or presuppositions), there was very little direct reference to the passages themselves. In other words, the students were not taking anything for granted or, so far, they had understood very little. One can guess this from the way in which we have mutilated Passage 1; a very partial comprehension seems to be revealed. 'Lower-order' questions of the most superficial variety would be involved; asking about the meaning of words or phrases; almost entirely involving intra-lingual cues. Nevertheless, one ought to say that these were the best students of English of their year and, at least in their own language, were fully conversant with all of the technical terminology in the passages, as well as the subjects being described.

Anaysing student's learning strategies might seem like a hopeless task. Indeed, it is often said to be so. This is because there is no end to the individual approaches a learner might take to the task of comprehension. What we are saying, though, is something slightly different. We are saying that, essentially, all of these strategies are ways of asking questions. Again, questions might take various forms; asking questions directly; simply repeating words; leaving sentences unfinished. Most certainly, the object of these questions is infinite and probably individual. It is a matter of choice whether one asks about morphology or word-order or an aspect of the meaning of the passage. To a large extent then, our classification of questions is arbitrary, but we will be looking at two things: (1.) the manner of question-making (in terms of question-form and presuppositions) and, rather less justifiably, (2.) the kind of subjects most causing confusion. Again, it must be admitted that, regarding the second, other classifications might be possible. Based on our visual criteria, we have classified the questions into three main groups; those making sense of words; those trying to grapple with the meaning of sentences, and those making sense of the world. One is simply asking how such models translate into the actual questions asked by stents.

Group 1: Making sense of words:

This would be the level that would concern most ESL teachers. Students are still trying to make sense of the little pieces of the picture and are still a long way from having a more general overview. In an early article, Carton (1971) describes three clues (or cues) as helpful to second-language learners in guessing the meaning of words or phrases from passages. There are **intra-lingual cues**, based on clues from within the grammatical or morphological system of the new language. For instance, *atmospheric* might be related to words that the student already knows (*atmosphere* or *cubic*). Recognition of such a word would be a matter of seeing that the word consists of two separate morphemes; *atmosphere + ic* . Also, there are **inter-lingual cues**, based upon resemblances between languages; for instance, a knowledge of French *arbre* might help a student guess the meaning of Spanish *arbol*. Lastly, there are **extra-lingual cues**, based upon the context in which a word is used. Our class hardly asked any questions based on the second or third types of cues. Inspection of the kind of questions asked by our group showed the great majority of questions fell into the first category of trying to follow intra-lingual cues.

Examples of the kinds of questions asked at this level can be found in Table 1. One will note that a total of 14 such questions were asked by the students during the four classes. As a result, the majority of questions fell into this class. General characteristics of these lower-order questions might be the following:

(i.) Orthography.		
1. Describing words by their geography, not their meaning. (One occurrence).		
Example 1:	S.	In the fourth line, the third word?
	T.	'Fewer.'
(ii.) Meaning of words.		
1. Asking directly about specific words. (Six occurrences).		
Example 1.	S.	Tendons?
	T.	Tendons are similar to ligaments, but they are small.
Example 2.	S.	Lubricate?
	T.	Lubricate is like 'oil'; it reduces friction because it is liquid.
	S.	Makes it slide?
	T.	Makes it slide; that's right. Any other questions? Cartilage; the adjective is 'cartilaginous.'
2. Making grammatical links. (Three occurrences).		
Example 1:	S.	'Spinal' is the adjective from 'spine'?
	T.	Yes, 'spinal' is the adjective from 'spine.'
Example 2:	S.	*Stethoscope-telescope-oscilloscope.*
Example 3:	S.	Yes, 'ic' in *atmospheric* ?
	T.	Atmosphere. 'Ic' is a suffix.
3. Finding synonyms. (3-4 occurrences).		
Example 1:	S.	Absorb - suck.
	T.	Or take in. Sucks up.
Example 2:	S.	Lubricate?
	T.	Lubricate is like 'oil'; it reduces friction because it is liquid.
	S.	Makes it slide?
	T.	Makes it slide; that's right. Any other questions? Cartilage; the adjective is 'cartilaginous.'
4. Making associations. (1 occurence).		
Example 1:	S_1.	Like 'meter'?
	S_2.	Focus?
5. Asking by demonstration. (2 occurences).		
Example 1:	S.	Doctor, this trunk?
	T.	No, its one of the limbs. The arms are one of the limbs. The two legs and the arms, and this is the trunk. *(indicating torso).*
Example 2:	S.	Eyebrows?
	T.	These. *(demonstrating).*

Table 1.:
Questions trying to 'make sense of words' from four language-lessons.

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1. limited scope: Often the focus is simply on a single word in the passage; questions carry no assumptions of knowledge of other aspects of the passage.

2. avoidance of meaning: When one cannot understand the meaning of a passage, one asks questions which avoid this aspect. This would be the case with the first example.

3. ingenuity in trying to elicit meaning: Alongside 2., there are a number of strategies for trying to come to terms with the meaning of the passage. Questions ask about words directly, or make use of their morphology. Extensive use is made of gestures in trying to define meaning or to find synonyms for problem words. The teacher followed similar methods of explanation.

4. unconventional form of questions: Here, it is a matter of asking questions at all costs. This is one good reason for proposing questions as a method of 'seeing.' Students are willing to risk the ungrammaticality of their questions since, without them, quite literally, they are lost. There are one-word questions ('Tendons?', 'Lubricate?'), declarative-form questions ('Spinal' is the adjective from spine?'), abbreviated sentences ('Doctor, this trunk?'), simple repetitions of the teacher etc..

(i.) Looking at grammatical form:			
1. Isolating function words.			(1 occurrence).
Example 1:	S.	'Food ... what?' 'Pepsin breaks down the food.' What is 'break'?	
	T.	'Pepsin breaks down the food and also stops food from going bad.'	
	S.	'From'?	
	T.	Yes.	
(ii.) Asking about Meaning.			
2. Asking about phrases.			(2 occurrences).
Example 1:	S.	What's the meaning of 'quick movements of his muscles'?	
	T.	Move his muscles? Muscles are ...	
	S.	What exactly is 'quick movement'?	
	T.	Movement, so its the noun from 'move.	
	S.	What's the meaning?	
	T.	You don't know move ? 'Quick' means quickly; rapid.	

Table 2.: Questions involving units beyond the word.

Group 2: Towards sentence-meaning.

There are only 3 such questions in the present four lessons. Table 2. shows some of the few efforts to directly explore units larger than the single word. First of all, the lack of these must be surprising since a large amount of teaching is devoted expressly to this topic. There were no questions about the meaning of structures; about verbs or tenses. There were no questions deliberately isolating sentences. Second-language research has long suggested that an undestanding of grammar is far from essential to successful comprehension. This must be the implication of Krashen's (1976) distinction between 'acquisition' and 'learning.'

There is one example here which appears to be about grammar. It isolates the word 'from' in the sequence 'from going bad'; here, the attempt is to understand the phrase as a unit rather than the sentence. Similarly, in the other example,

phrases are involved; 'quick movements.' In our terms, there is a very simple reason why phrases might constitute units of comprehension, rather than sentences. This is because they can provide complete answers to questions; even, lower-order questions. An example would be, 'Where are you going?' (lower-order question, asking for specific information); A. 'To the beach.' Seen in these terms, comprehension becomes a process of 'tracing questions.' One might imagine a number of stages to this:

1. Isolate 'visual' units: these would be answers to questions; e.g. *from going bad* .

2. Finding possible related questions: Here, the answer would define the scope of the question.
From the answer, one can infer or 'see' the question; or hopefully so. In fact, in Example 2., this process is very dificult; hence, perhaps, the need to ask about the relationship. A possible question which might elicit 'From going bad' as a single answer might be 'What does pepsin *prevent* the food from doing?' This is a difficult question but, here, the student was working towards the meaning of the sentence as a whole.

3. Join 'visual' units: If one carries 2. to an extreme, one sees the passages simply in terms of a maze of unconnected, short-answer questions. One 'sees' the passage in a pointillistic fashion, simply as many little dots; short answers to unnecessarily complex questions. In order to redress the balance, one tries to join the answers to questions in order to understand a broader question which covers more of the passage; for example, 'What is pepsin?'

According to the above scenario for inferring meaning, most of these students were between Stages 2 and 3. Nevertheless, like all 'bottom-up' models of reading (or 'top-bottom'), this is a slightly simplified account as one can see from the next group of questions.

Group 3: Making sense of the world.

There were 8 such questions falling into this category. The final stage would involve an additional level of processing:

4. Evaluation of content: One compares what is said in the text against one's own impressions of the same phenomenon.

This would be a level of 'critical' literacy; probably, rather unusual in second-language reading. It would suggest that the student has become quite advanced and successful in joining visual units and is now able to 'take a stepwards' to evaluate the total picture being presented by the passage.

Table 3. shows those sequences that might suggest such a level of understanding. We have divided this process of evaluation into two main stages; confirming facts and confirming explanations. The first of these involves a smaller unit than the second. We have a number of examples of the first; in which the students are sceptical of individual facts being presented in the passages. There is no real instance of the same process occurring with explanations from the passages. Such sequences did occur but, here, the passages were mainly descriptive in nature and provided little conjecture or hypothesis. This must have been an important factor in limiting the scope of questions and, probably, a feature to be avoided in one's choice of reading passage. The example provided arose from a demonstration of the process of hitting or punching by the teacher; clearly, an activity incidental to the reading of the passage itself.

There was also an interesting class of questions we have described as being 'culturally-related.' Since the reading passages were scientific in nature and contained little information influenced by culture, these questions were incidental to the passages themselves and arose from the classroom discussion. One of these has been provided; largely, an attempt on the student's part to elicit a discussion about unclean eating habits. Another involved what one says when people

1. Confirming facts.		(5 occurences or more).
Example 1:	S.	2500 grammes ... is it definite?
	T.	Is that right? Or is it kilos? No, its right. What's the average weight of a baby?
	S_1.	Maybe 2 kilos.
	S_2.	3 kilos.
Example 2:	S.	Sir, sucks his thumb *inside* the womb?
	T.	Sucks his thumb inside the womb? Alright. You know 'stethoscope'? Used for hearing the heart, right?
2. Confirming explanations.		(1 occurrence).
Example 1:	T.	Its like that. *(punches hands together)*
	S.	Hit, eh?
	T.	Yes.
	S.	Suddenly?
3. Culturally-related questions.		(2 occurrences).
Example 1:	S.	What's the meaning of 'ham'?
	T.	Of what? Of 'ham'? Oh, you don't really want to know about that.
	S.	Why then they called 'hamburgers'?
	T.	Oh, I see what you mean. I think it was originally made from ham.
	S.	The meat from ... where?
	T.	I can't imagine.
	S.	I hear it from ... dog.

Table 3.: Questions trying to 'make sense of the world.'

sneeze[5]. Again, this was incidental to the actual content of the passages.

Ultimately, almost questions are an attempt to 'make sense of the world,' or to make sense of the chain of reasoning being followed in a passage. Clearly, this is only possible after one has succeeeded in piecing together some of the smaller linguistic units. Very few of our students achieved this level but, hopefully, one can see how they were trying to piece together the meaning. Essentially, they were following a jigsaw approach to reading but, unlike a jigsaw, the student is assisted by the fact the smaller units are not deliberately confused nor are they simply arbitrary. One is dealing with a 'chain of questions' or, perhaps more correctly, a 'chain of answers.' By identifying units that satisfy the conditions for answerhood (via. the scope of questions), eventually one reaches a stage when one can look critically at what is being said in a passage and evaluate the entire picture. Unfortunately, the present students were only struggling with the early stages of this process.

D. What is L2 reading?

I have tried to answer this question by means of two main models; both visual. The first of these has been that second-language reading is like a pointillist picture. We construct our reality by a process of piecing together the smaller units in order to construct a larger picture. The actual mechanism by which this is achieved can be seen in the operations of human eye; our second main metaphor. The ability to infer the links between smaller units and larger is an aspect of focus upon particular units. It was said at the beginning of this paper that it is unlikely that no single theory or metaphor is likely

to encompass all the variables involved in reading. Nevertheless, some of the matters we have discussed might lay the basis for certain ground-rules for teaching global comprehension (albeit at a fairly literal and unsophisticated level).

Based on the operations of the lens in our eye, one might make a distinction between **visual focus** and a variety of '**verbal' focus** involving the scope of questions. It has been suggested that the purpose and usefulness of both kinds of focus are roughly parallel. According to the present views, the purpose of language-teaching would be the teaching of verbal focus. Almost everything else would be secondary to the manner in which the students builds up his picture of the world. This is particularly so in teaching comprehension skills. As regards production, many aspects of a grammar can be inferred by the manner in which one pieces together content words (especialy, nouns or noun-phrases). It will be recalled that, among the present set of questions, there was hardly a single question about grammar. This would suggest that other aspects of a language much more important to forming a 'picture' of the meaning. In particular, one might encourage students think only in terms of the scope of questions. One might provide two-line exercises consisting of questions and answers. These could be of two kinds. One could delete the question and provide only a short-answer. The would almost exactly parallel the processes involved in reading. Rather less effectively, one could provide the question and ask the students to provide a short answer. Both of these would involve teaching verbal focus. Similarly, one could continue this process throughout a range of question-types; beginning with Yes-No questions, choice questions and short-answer wh-questions and working towards long-answer questions ('Why?,' 'How?'). The latter would correspond to Been's (1978) higher-order or evaluative questions.

It might be noted from our classroom data that students do not always manage to utter a correct grammatical question; indeed, their undestanding of the grammar of questions is very shaky. At the same time, though, questions are being asked. This would suggest that there is something much more important about questions than simply their **grammatical role**. Students ask questions in spite of their lack of knowledge of how to ask. Examples include the following: 'Spinal' is the adjective from 'spine'? (Group 1); 'Doctor, this trunk?' (Group 2), and '2500 grammes ... is it definite?' (Group 3). Clearly, we would say their importance arises as instruments by which one infers the meaning or their **visual role**. The latter does not involve the grammar of the question itself, but the relationship between the question and the answer. We would say that the visual or logical role of questions needs to be explicitly taught. In terms of reading, what might be involved is an ability to infer questions from answers (via. the scope of the answers). In terms of writing, what might be involved is an ability to infer the kind of answers which follow from the scope of particular questions. These would be aspects of the way in which questions contribute to a general rhetoric of passages, not a matter of their own internal structure.

There is an implication which arises from the present data in terms of the kinds of passages one might choose for reading-comprehension tasks. The problem with all of the present passages were that they were 'beyond questionning.' They presented a set of well-accepted and well-known facts. This might be appropriate in the early stages of courses but, whether one is teaching ESP or a 'general' variety of English, one wants the students to be able to express their own views. This is not merely a matter of talking, but of helping them to gain a wider perspective. Almost by definition, it is necessary to provide personal perspectives in order to encourage higher-order questions. Passages based on why a writer holds a particular view will elicit the same kind of questions from students. This did not happen here; there was not a single instance of a 'Why?' or a 'How?' question. In their search through the vocabulary of a passage, ultimately students should be confronted with these broader-ranging questions. Nevertheless, this does represent a paradox; that the broader-ranging questions are indicative of a narrower, or more personal, point of view. This is because the latter requires jusification. Because of this paradox, probably it is more justifiable to begin with factual passages and, only later, work towards passages encouraging a more critical reading.

What we have been saying in this article is that perhaps second-language reading might not be as difficult or as complex an activity as might be supposed. We have tried to identify a set of rough guide-lines for some of the logical processes involved in reading in the form of our notion of 'verbal focus.' Nevertheless, one cannot claim that this is all that is

involved in reading, but simply that it might provide a starting-point for materials designed to encourage guessing or inference activities.

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This paper was first presented at a staff seminar at the PNG University of Technology.

Notes:

1. At a recent conference on developmental literacy at the University of Papua New Guinea, Sakarepe Kamene claimed that the world-view of the Zia people of Central Province was circular, particularly in regard to its perceptions on time.

2. This statement is mainly based upon information provided by Kevin Ford and other colleagues at UPNG. African languages in which the verb 'to understand' can have exactly the same meaning as the verb 'to see' include the following: Hausa, Ewe and Kikuyu. The same feature can also be found among the following languages in New Guinea : Hiri Motu, Zia, Kamano-Yagaria. Reportedly, there are also languages in which the verb 'to understand' can be replaced by 'to hear' (Maisin) and even 'to eat.' Nevertheless, among the senses, the correlation between comprehension and vision appears to be the most usual.

3. In terms of logical notation, probably this would be something like the following: $\exists$ x (x place . you went to x last night) or 'There is an x such that x is a place and you went to x last night.'

4. In using this term 'higher-order question,' I am partly following Been's (1978) example. However, it is most immediately associated with work in the logic of conversations. In particular, I am thinking about Jaako Hintikka's (1982) interrogative model of conversations/teaching. This also describes conversational development as proceeding from the scope of questions. These decide one's choice between different kinds of questions. Hintikka (1982) does not distinguish between different kinds of wh-questions according to the criterion of scope. Nor does he pursue the developmental aspects of scope that have concerned us here.

5. Apparently, Arabic 'Rhahamkhala' is equivalent to English 'God bless you!' In Arabic, though, the word for 'sneeze' means a 'small death.'

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